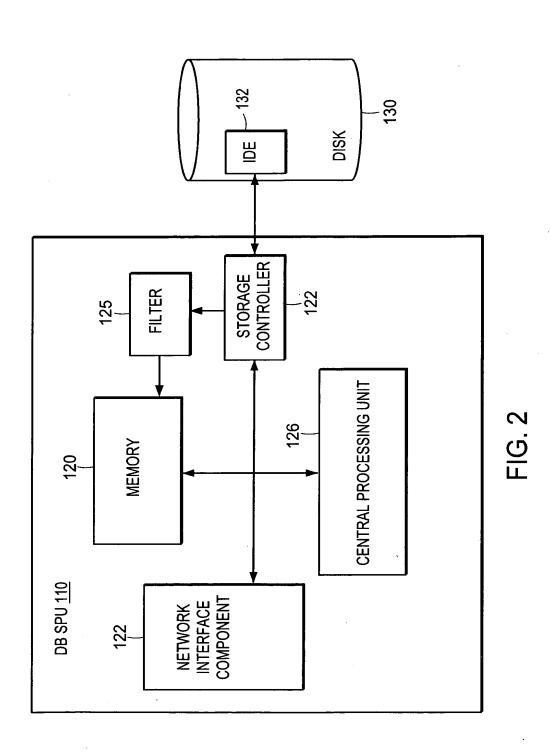
Docket No.: 3336.1017-001 Controlling Visibility in Multi-Version.. Title: Foster D. Hinshaw, et al. Inventors: Replacement Sheet 1/19 DB SPU RESOURCE USAGE MANAGER DB\_SPU RESOURCE USAGE MANAGER 110 110 ORDER RELATIONS CALLS TO ACQUIRE CALLS TO ASSERT ORDER RELATIONS CALLS TO ACQUIRE CALLS TO ASSERT RESOURCES RESOURCES TRANSACTION MANAGER QUERY EXECUTION **TRANSACTION** QUERY EXECUTION MANAGER MANAGER MANAGER 113 113 SENDS NEW ORDER RELATIONS SENDS NEW ORDER RELATIONS SENDS NEW ORDER RELATIONS SENDS NEW ORDER RELATIONS SENDS A QUERY SNIPPET FIG. 1 TRANSACTION MANAGER SERIALIZATION CHECKS FOR SERIALIZATION **PRANSACTION** CHECKS FOR EXECUTION MANAGER EXECUTION MANAGER MANAGER QUERY CYCLES QUERY 101 101 SENDS NEW ORDER RELATIONS 103 ORDER RELATIONS CALLS TO ACQUIRE ORDER RELATIONS CALLS TO ACQUIRE CALLS TO ASSERT CALLS TO ASSERT RESOURCES RESOURCES **USAGE MANAGER USAGE MANAGER** RESOURCE RESOURCE DB-HOST DB-HOST 102 100 102 100

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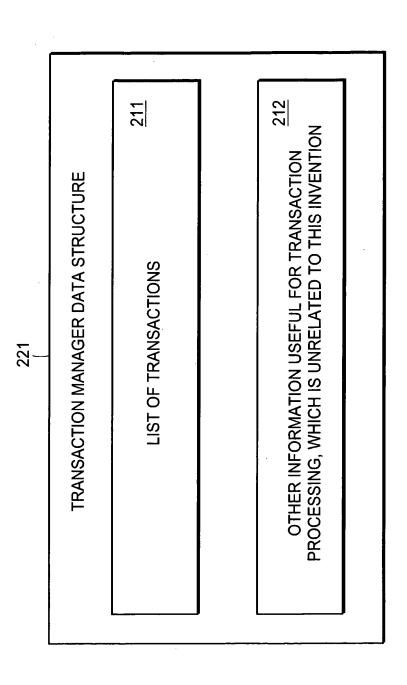
2/19



Docket No.: 3336.1017-001 Title: Controlling Vis

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Inventors: Foster D. Hinshaw, *et al.*Replacement Sheet



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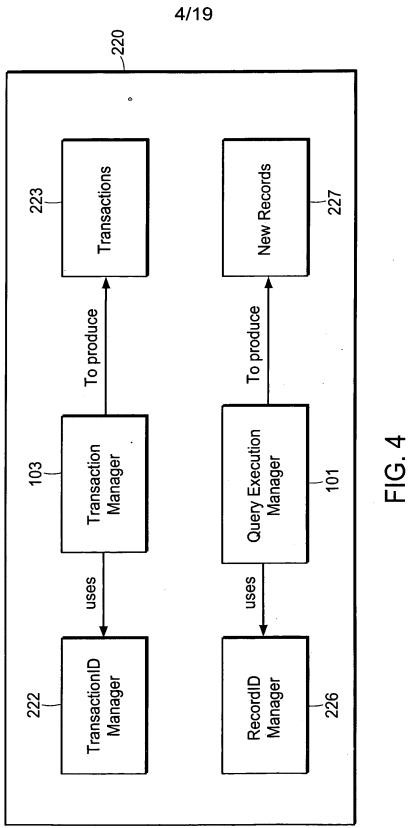
3336.1017-001

Title:

Controlling Visibility in Multi-Version..

Inventors:

Foster D. Hinshaw, et al. Replacement Sheet



Foster D. Hinshaw, et al. Replacement Sheet 5/19 200 TRANSACTION DATA STRUCTURE - 201 **TID** STATE INFORMATION: INCLUDING WHETHER THE - 202 TRANSATION IS ACTIVE, COMMITTED OR ABORTED INVISIBILITY LIST - 204 NUMBER OF TIDS IN THIS LIST -203 -205 NUMBER OF TIDS TREATED AS INVISIBLE 206 **VECTOR OF TIDs** TRANSACTION START TIME 207 - 208 TRANSACTION END TIME LOW WATER MARKS 209 - 210 **HIGH WATER MARKS** OTHER INFORMATION USEFUL FOR - 211 TRANSACTION PROCESSING, WHICH IS UNRELATED

Controlling Visibility in Multi-Version..

Docket No.: 3336.1017-001

Title:

Inventors:

FIG. 5

TO THIS INVENTION

3336.1017-001

Title: Inventors:

Controlling Visibility in Multi-Version..

Foster D. Hinshaw, et al. Replacement Sheet

6/19

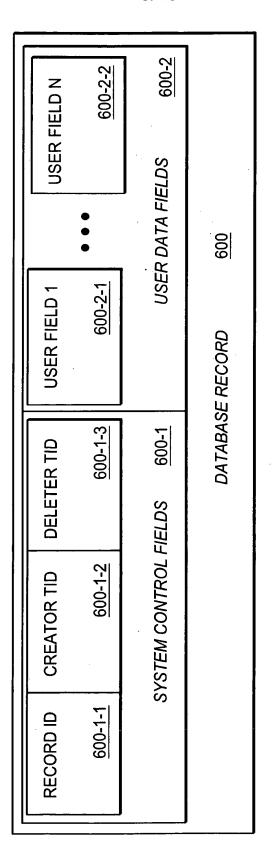


FIG. 6

Title:

3336.1017-001 Controlling Visibility in Multi-Version.. Foster D. Hinshaw, *et al*.

Inventors:

7/19

	<del>-</del>		7/19		
100	110-1-5	40	<u>110-2-6</u>	58	110-3-6
LISA	110-1-5	HENRI	110-2-5	NADHU	110-3-5
SMITH	110-1-4	LEROQ	110-2-4	REDDI	110-3-4
0	110-1-3	0	110-2-3	0	110-3-3
1234	110-1-2	1234	110-2-2	1234	110-3-2
<del>-</del> .	110-1-1	2	110-2-1	ဧ	110-3-1

Docket No.: 3336.1017-001
Title: Controlling Vis

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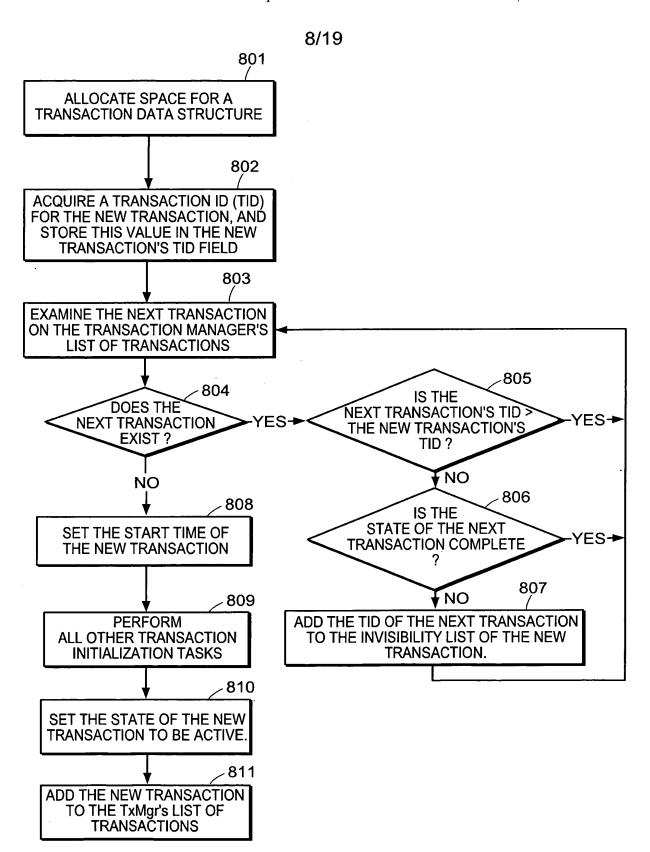


FIG. 8

Title: Controlling Visibility in Multi-Version..

Inventors: Foster D. Hinshaw, et al.
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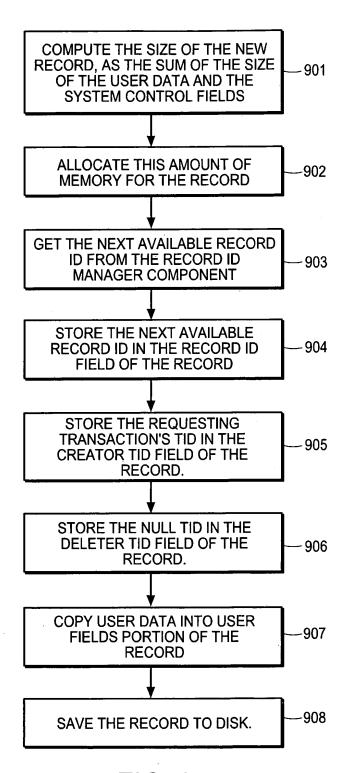


FIG. 9

Title: Inventors: 3336.1017-001 Controlling Visibility in Multi-Version.. Foster D. Hinshaw, *et al.* Replacement Sheet

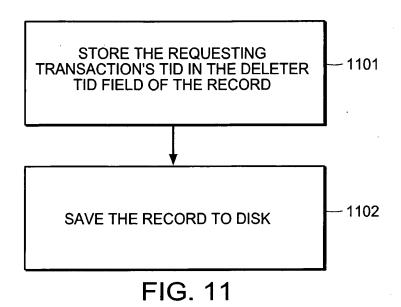
-	1234	0	SMITH	LISA	100
110-1-1	110-1-2	110-1-3	110-1-4	110-1-5	110-1-5
5	1234	2000	LEROQ	HENRI	40
110-2-1	110-2-2	110-2-3	110-2-4	110-2-5	110-2-6
8	1234	0009	REDDI	MADHU	85
110-3-1	110-3-2	110-3-3	110-3-4	110-3-5	110-3-6
4	4000	0	KASILOVA	VIKA	95
110-4-1	110-4-2	110-4-3	110-4-4	110-4-5	110-4-6
7	2000	0	LEROQ	HENRI	75
110-5-1	110-5-2	110-5-3	110-5-4	110-5-5	110-5-6

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Replacement Sheet

11/19



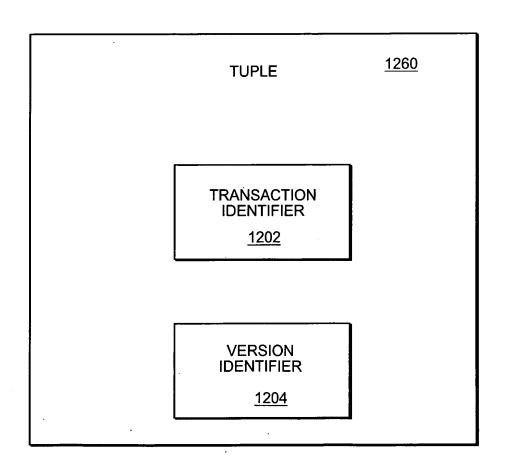


FIG. 12

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12/19

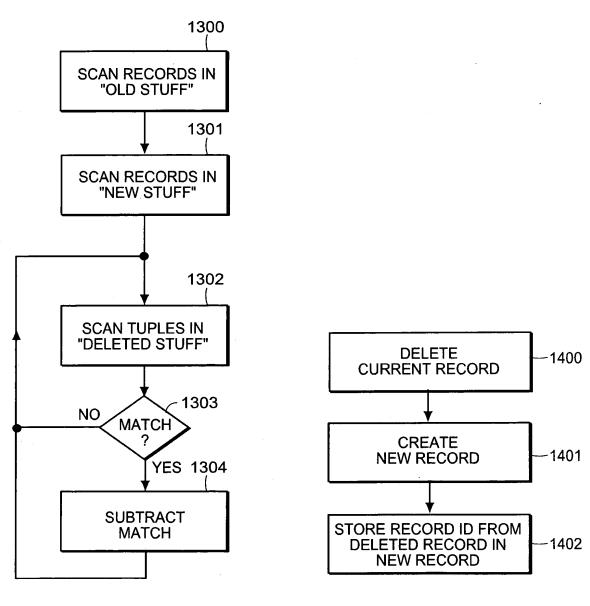


FIG. 13

FIG. 14

Title: Controlling Visibility in Multi-Version..

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13/19

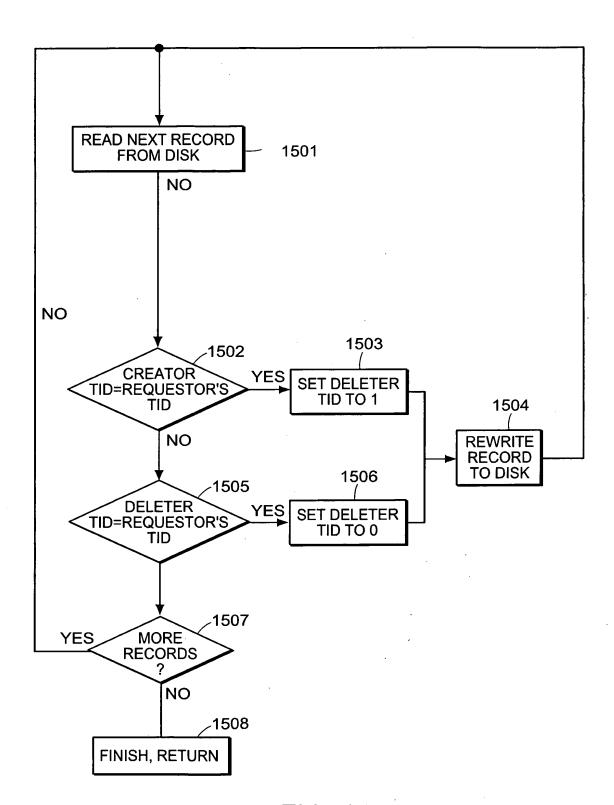
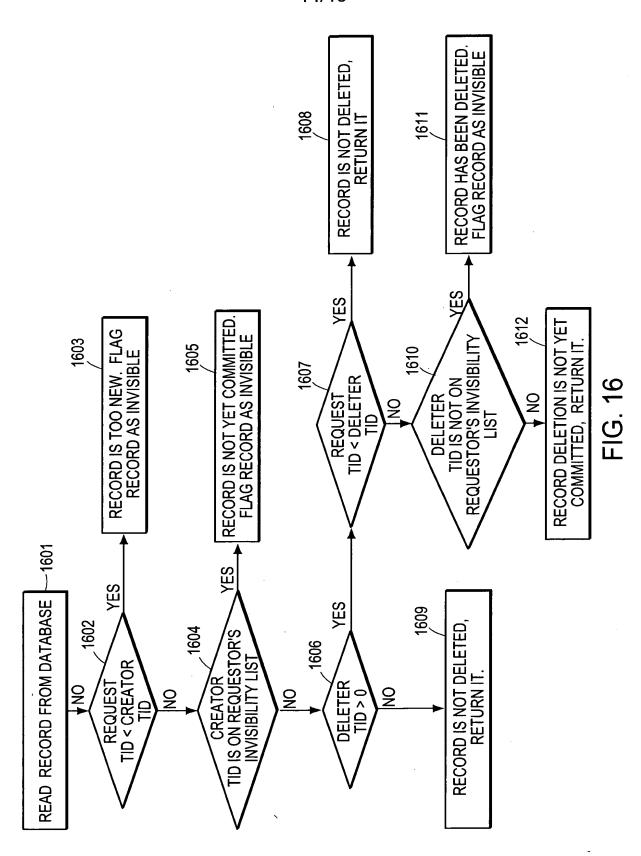


FIG. 15

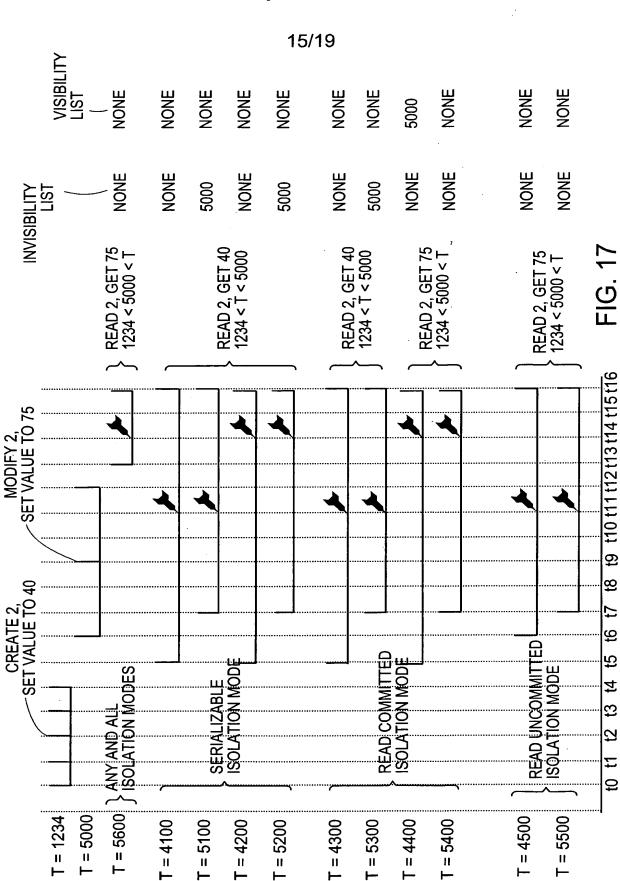
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Inventors: Foster D. Hinshaw, *et al.*Replacement Sheet

14/19



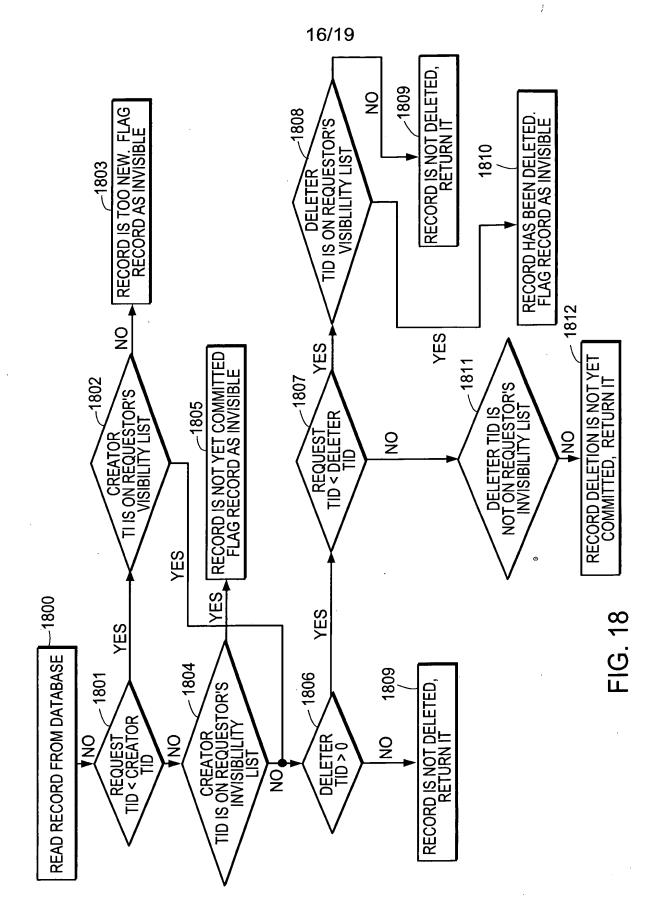
Title: Controlling Visibility in Multi-Version.. Inventors: Foster D. Hinshaw, et al.



Docket No.: 3336.1017-001 Title:

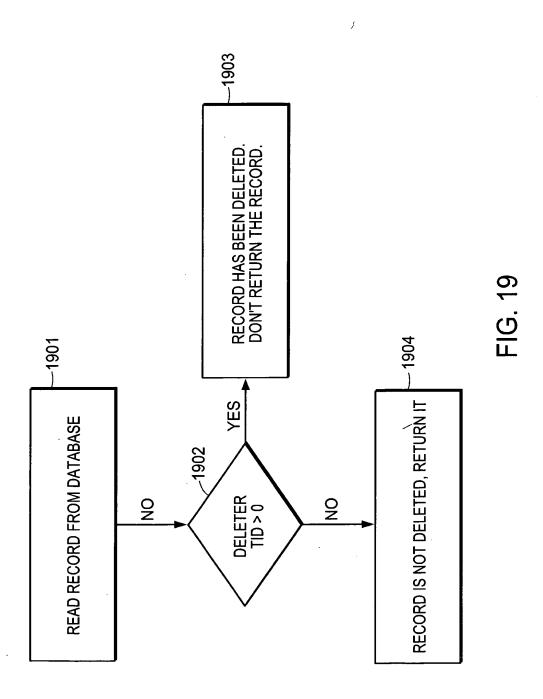
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Inventors: Foster D. Hinshaw, et al.



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Replacement Sheet



3336.1017-001

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Inventors:

Foster D. Hinshaw, et al. Replacement Sheet

18/19

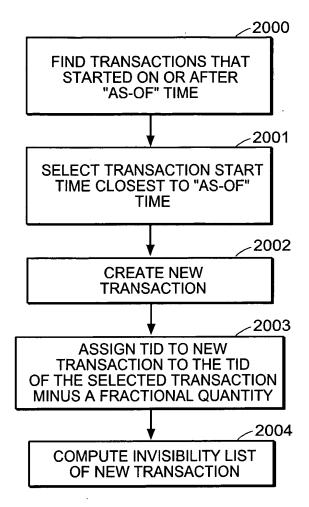


FIG. 20

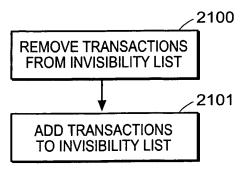


FIG. 21

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Replacement Sheet

19/19

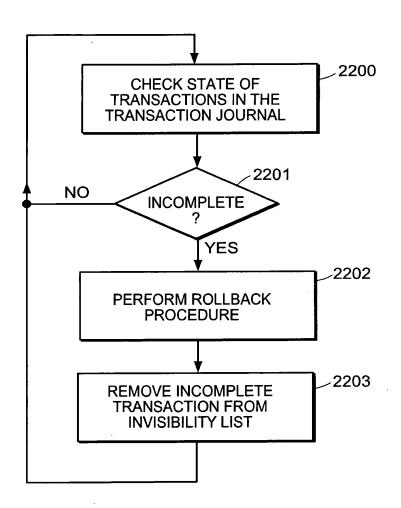


FIG. 22